

**Notice of Allowability**

Application No.

10/782,960

Examiner

Hien X. Vo

Applicant(s)

SEKI, KEMPEI

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed on 02/23/04.
2. ☒ The allowed claim(s) is/are 1-4.
3. ☒ The drawings filed on 23 February 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>02/23/04</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                               | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 02/23/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Allowable Subject Matter***

2. Claims 1-4 allowed over the prior art.
3. The following is an examiner's statement of reasons for allowance:

Although the prior art disclose some claimed limitations, for example:

Peregrino et al. (U.S. Patent No. 4,135,243) disclose a single sampler heterodyne method for wideband frequency measurement.

Premerlani (U.S. Patent No. 4,715,000) discloses a method and apparatus are disclosed for providing a sampling signal having a frequency which is maintained in constant proportion to the frequency of an input signal. The input signal is sampled at instants determined by the sampling signal to provide a plurality of data signals associated with one cycle of the input signal. A signal processor is adapted to receive first and second pluralities of data signals associated with first and second cycles of the input signal and to perform two discrete Fourier analyses to provide two

phasor signals representing two voltage phasors of respective fundamental frequencies of the discrete Fourier transforms.

Girgis et al. (U.S. Patent No. 4,319,329) disclose the frequency measuring apparatus and methods are used in an alternating current (AC) electrical power system for measuring and monitoring frequency deviation  $\Delta f$  from the nominal system frequency  $f$  and actuating protective relaying when the frequency deviation is excessive.

With respect to claim 1, none of the prior art teach singularly or in combination a voltage measuring part for measuring the voltage of an electric power system at timings which are obtained by equally dividing one period of a reference wave by  $4N$ , a chord length calculation part for calculating, at each of the  $(4N + 1)$  timings, voltage vectors directed to points represented by complex numbers on a complex plane, each complex number consisting of a real part which is one of the voltages measured at a first timing comprising any of the  $(4N + 1)$  timings, and an imaginary part which is a voltage measured at a second timing delayed by 90 electrical degrees from the first timing, the chord length calculation part further calculating, at each of the  $(4N + 1)$  timings, the length of a chord connecting a tip end of one of the voltage vectors calculated at a third timing, comprising any of the  $(4N + 1)$  timings, to a tip end of another of the voltage vectors calculated at the last timing before the third timing; a voltage root-mean-square value calculation part for calculating, at a fourth timing comprising each of the  $(4N + 1)$  timings, a voltage root-mean-square value from those of the voltages which are measured at past  $4N$  timings, from the fourth timing and at

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the fourth timing, a rotational phase angle calculation part for summing, at a fifth timing, comprising each of the  $(4N + 1)$  timings, those of the chord lengths which have been obtained at past  $4N$  timings from the fifth timing and at the fifth timing, and calculating, based on a the sum of the chord lengths and the voltage root-mean-square value, a phase angle between one of the voltage vectors calculated at a sixth timing comprising any of the timings and another voltage vector calculated at a timing preceding the sixth timing by one period of said reference wave; and a frequency calculation part for calculating the frequency of the electric power system from the phase angle thus calculated.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

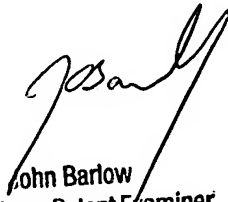
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien X. Vo whose telephone number is (571) 272-2282. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hien Vo  
06/11/05



John Barlow  
Supervisory Patent Examiner  
Technology Center 2800